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forming extensive forests, co-ordinates, which may be occasionally grown in extensive plantations for their economic value, though properly not desirable for dominant forest growth, and subordinates which are useful to fill up the forest stand.

The most important qualities for the consideration of the forester, possessed by different timbers in a different degree, are the relation of their development to the influence of light, shade, and rate of growth. A classification into shade-enduring and light-needing species in a general series is possible. The relative requirements as to light must be studied in the dense forest, where no side light changes the habit of forest growth. The capacity of trees to endure shade is manifested by the density of their foliage and by the tenacity in sustaining life of lower branches and overshadowed individuals. Conditions of site modify the requirements for light. Alpine floras become light-needing floras; cloudy climes increase requirement of light and southern skies diminish it, so do humid atmospheres.

As the preservation of soil humidity becomes a necessity all over the world only such species as are capable of shading the soil against undue evaporation should be chosen for the dominant forest. These are the shade-enduring ones.

A study of the form-development must precede consideration of rates of growth. Trees may be classified according to their greater tendency to develop the bole or the crown. Their true habitus must be studied in the open; the dense forest influences the development especially of the latter class, it stimulates height-growth. Soil, situation and age influence form-development, the energy of height-growth being increased in fresh and deep soils, while shallow and compact soils, altitude, cold winds reduce this energy.—B. E. FERNOW.

EDITORIAL.

IT IS PROBABLY safe to say that the botanists form the best compacted organization of scientific workers in the country. Their work demands the most widespread exchange of facts, and this has led to correspondence which has often ripened into friendship. This can be plainly seen at such meetings as the one just held at Buffalo, and the Botanical Club is doing a great thing in fostering these friendships and binding together still more firmly widely scattered workers. A spirit of courtesy is prevalent, the spirit which prompts to render every possible service, and respects the rights of one who is already occupying some special field. The whole field of botany is so large that there is an abundance of room for every one without jostling. The stimulus of these annual meetings in directing botanical activity can hardly be overestimated. Never before has there been such botanical activity in this country, and no small part of the cause is due to the botanical journals which supply the means of speedy publication, and the meetings of the Botanical Club, which bring all workers into more sympathetic relationship. We would urge upon botanists who have not already mapped out their work that they select at once some convenient subject for investigation during the coming year, so that at their

next meeting they may have something of interest to present which will be a real contribution to science. The thing to be criticized in many of our botanists is the aimlessness of their work. One year is much like another, and consists in the collection of specimens, the finding of new stations, or the observation of a few unimportant deviations from published descriptions. It is true that the days of announcing albinos is past, but there ought to be a more decided settling down to some special work. On the other hand, the mistake should not be made of selecting some subject far too difficult, which is beyond the range of the worker both in experience and material. The commonest materials and the easiest subjects are the best to work, for they imply a sufficiency of ability and material. The young collegian thinks of stopping nothing short of reorganizing the universe, and the ambitious young botanist is something like him. The work that is nearest at hand is the work to be done, and no subject, however unpromising at first, will fail to open up to patient work all the opportunities desired. In the selection of a subject advice should be asked of those more experienced, else a perfectly useless work may be undertaken, or one that has already been done in a much better way. Collecting and exchanging are all good enough in their way and necessary, but they simply furnish material for work, and that they are to represent the height of a botanist's ambition can not be too strongly decried. Every botanist should become an original observer and not simply lead a tread-mill existence. All this is not by way of saying that the botanists of this country are not at work, for there is an abundance of good work being done, but simply to stimulate the many who are not at work as they should be.

SOME MENTION is made elsewhere in this issue of the present status of botany in the Department of Agriculture at Washington. It is evident there has been expansion, which has resulted in leaving the original botanical division as strong as before, and in some respects stronger, while there has been a distinct gain in establishing the study of plant diseases as a separate and clearly recognized portion of the Department. It remains to be seen if this good beginning can be maintained, and made the fulcrum for higher and broader work. An institution which depends upon annual appropriations for its income, and which must rise step by step from small beginnings to its full measure of usefulness, needs the support of a strong public opinion to save it from the numerous pitfalls that annually beset its progress or possibly its existence in legislative halls. The botanists of the country should constitute one of the important forces in sustaining this new enterprise. The committee of the A. A. S., which has heretofore lent assistance, is now disbanded, and botanists should consequently feel that such responsibility as may exist lies with them individually.

AT THE TIME the August number should have been prepared for press the editors were taking their vacation—the senior editor with a party in Indiana, one of the others in the mountains of West Virginia, and the third on the shores of Vermilion lake, in Northern Minnesota. If any short-comings are observed in that number our subscribers will have no difficulty in surmising the cause.